

Nocardia Brain Abscess in Immunocompetents

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Abstract

Background: Nocardia brain abscess is a rare entity. Commonly associated with immunocompromised conditions. Complete excision is the treatment of choice with intravenous antibiotics but the prognosis is limited.

Case Description: This is a case of 42 years old male that presented with fever and disorientation. MRI brain with contrast showed multiple posterior fossa abscess which was surgically treated and found to be Nocardial brain abscess. The patient was treated accordingly and responded well to the treatment.

Conclusion: Brain abscess caused by Nocardia species is uncommon, especially in immunocompetent people. It should be managed aggressively and dissemination through blood is associated with poor outcome.

Case Presentation

A 42 years old male with no known previous co morbid, presented in the emergency department with fever, disorientation and decrease verbal response. MRI brain with contrast was done which showed a multilobulated septated cystic area involving left cerebellar hemisphere associated with surrounding edema and compression of 4th ventricle resulting in obstructive hydrocephalus of lateral and third ventricles. There was also the mass effect on midbrain causing obliteration of basal cisterns and herniation of cerebellar tonsils. It showed restricted diffusion on diffusion-weighted image and peripheral ring enhancement on contrast measures 3 x 4.8 x 2.7 cm in diameter (Figure 1).

He underwent ventriculoperitoneal shunt and followed by posterior fossa craniotomy, drainage of abscess and marsupialization of abscess wall. Intraoperative findings showed frank pus that was sent for culture and sensitivity and MTB PCR. The tissue sample was sent for histopathology.

MTB-PCR was negative, and tissue histopathology showed chronic non-specific inflammation and granulation tissue consistent with abscess. Pus culture showed Nocardia species (Figure 2). HIV serology was sent to see immune status which turned out to be negative.

The patient was then started on intravenous antibiotics, sulfamethoxazole, trimethoprim, and imipenim. He remained well after surgery and was discharged for home on antibiotics with regular outpatient follow ups. A CT scan brain was carried out in the following, as shown in Figure 3.



Figure 1: Multiple ring enhancing lesions involving left cerebellar region on contrast and restricted diffusion on DWI.

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Pathogen: Nocardia species	
Antibiotics	
IMIPENIM	S
AMIKACIN	S
MINOCYCLIN	S
CO-TRIMOXAZOLE	S

S= Sensitive R= Resistant

Figure 2: Microbiology culture and sensitivity report.

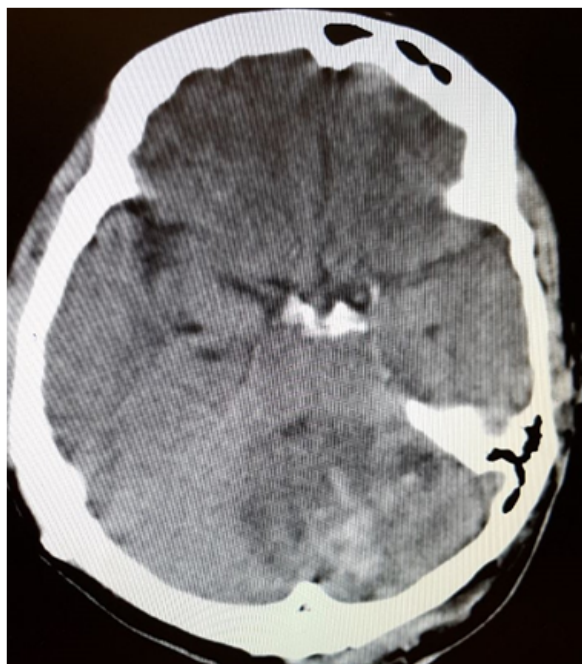


Figure 3: Postoperative CT scan.

Discussion

Nocardia species is an aerobic soil-saprophyte bacterium, usually present in immune compromised patients as an opportunistic infection (1). About 50% to 85% of infections occur in an immunocompromised host (2,3). The lung is commonly involved in 60 to 80% of cases, followed by the central nervous system (4,5). *Nocardia* brain abscess accounts for 1 to 2% of cerebral abscess and the common site is brain stem. The incidence is gradually increasing, and the prognosis is poor (1,2,6). It is an aggressive infection with high mortality associated with dissemination of disease outside CNS through blood (7,8). Clinical presentation is usually nonspecific (9). Preoperative diagnosis is difficult and usually, the diagnosis is established by bacterial cultures (10).

The only drainage is usually ineffective also it will lead to spreading of disease in adjacent tissues (11-13). Radical extra capsular excision is the best procedure of *Nocardia* brain abscess (10,14-16). But they are usually difficult to remove completely as they are usually multiloculated and because of the proximity of brain stem (7,10).

High-dose sulfonamides have the ability inhibit the growth of 95% to 100% of *Nocardia* strains (3). 4 to 6 weeks of IV antibiotics are required (17).

Postoperative CT scans sometimes necessary to monitor the drug therapy and recurrence of disease (9).

Conclusion

Nocardial brain abscess is the rare entity and associated with the immune compromised state with poor outcome. In the brain, it usually involves posterior fossa region and should be excised completely with the long-term course of Intravenous antibiotics.

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